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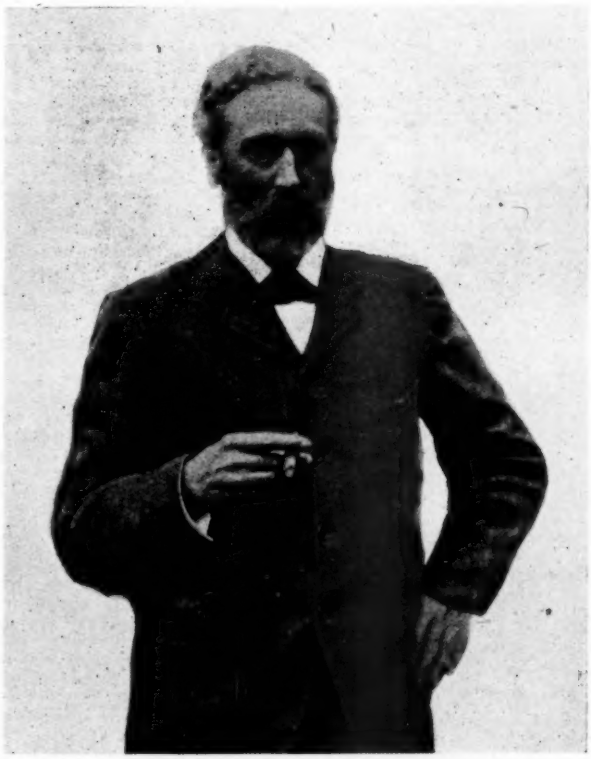
William Hunting, 1843-1913

An Appreciation on the Occasion of the Centenary of his Birth*

"We all knew him. He was held in the very highest respect by every member of this profession. He did his duty to the profession whenever called upon, and his memory will be green as long as the veterinary profession lasts."—W. J. MULVEY (1913).

William Hunting was on the staff of a veterinary college for only a very brief period but, as John Malcolm, one of his greatest contemporaries, wrote at the time of his death, Hunting "was one of our real teachers. Always a searcher after truth he kept an open mind on all debatable points, and there was nothing he appreciated more than an open mind upon unsettled subjects in others. The possession of this faculty he always attributed to the influence of his teacher, John Gamgee, but whatever Gamgee's influence was, there is no question that Hunting inherently possessed this qualification. His writings in the *Record* brought weekly instruction, interest and pleasure to all his readers, and all know how he travelled the country from end to end to attend veterinary meetings, to lecture upon and discuss matters of interest to the members, and we can remember how we benefited by his illuminating talks, keen insight, logical deductions, and true, explicit, lucid exposition of the subject under discussion. Literally a young man all his life, he revelled in meeting a young professional enthusiast, and discussing with him matters of vital interest or prime importance. I shall never forget the first day, now over thirty years ago, I spent in his company. . . . When I left him that night I thought him in many senses the most remarkable man I had met."



The formation of the profession as a legally constituted body was brought about by the labours of various devoted persons, which culminated in the passing of the Veterinary Surgeons Act, 1881. But if there was one man of whom it could be said that his personality and literary work were largely responsible for the development of a real unity and sense of corporate responsibility within the profession that man was William Hunting.

For several generations before our charter of incorporation was granted there were Huntings practising at Yoxford in Suffolk. Charles Hunting, the father of William, was one of a family of 16 and left home in 1835, when 13 years old, to make his way in the world. He was a married man with two children when he entered the Royal Veterinary College in 1848. In 1851 Professor Spooner recommended Hunting to some colliery owners in Durham as a man capable of undertaking the general and veterinary charge of their horses, and he moved with his family to South Hetton. He had both scientific and business ability and effected great improvements and economies in the health and management of pit ponies. He became a very wealthy man and travelled widely. He took an active part in professional affairs, and was a director of two large companies. A year before his death he was invited to stand as Liberal Parliamentary candidate for S.E. Durham. During the last few years of his life he acquired and managed six or seven farms, "finding great benefit and pleasure from riding and driving about them."

He was a masterful, vigorous man of medium stature, with luminous black eyes, and in his later years a flowing white beard. He had a fiery temper. We understand that his wife was a talented Irish lady, but there is evidence that she lacked his energy.

Despite Charles Hunting's businesslike character, there is no record of William Hunting's birth at Somerset House.* His boyhood days, from the age of six, were passed in the village of South Hetton where, no doubt, he assimilated much knowledge from his father's mixed country and mining practice. He received his general education at the Edinburgh Academy and his professional education in John Gamgee's New Veterinary College at Edinburgh, and qualified in 1865. For a time he was an assistant in practice with his father, with Mr. Greaves, of Manchester, and Mr. Cartwright, of Wolverhampton, and was then appointed Professor of Veterinary Science at the Royal Agricultural College, Cirencester. As a young man at the Cirencester College he took a keen interest in athletics, particularly boxing, and throughout his life he carried with him the dash and vigour of those early days. In 1868 John Gamgee gave him a professorship in his veterinary college, which had in the meantime been transferred to London. It is unfortunate that the Albert Veterinary College was closed soon afterwards but there can be no question that Hunting, like his father before him, was inspired by association with John Gamgee: he never ceased to speak of his old master with admiration and affection and there can be little doubt that it was Gamgee's influence which gave him his great insight into the principles of preventive medicine.

In the 1869 Register Hunting's address is given as 6, Derby Street, Mayfair, and in the seventies he was one of the few to give serious attention to the diseases of the dog, but this interest was not maintained. It must have been about this time that he married. His wife was a relative of John Gamgee and his daughter, Louisa, was born in 1870. We know little of Hunting's married life but his wife probably died before 1885. It has been said that a thrifty, careful wife would have been a great aid to Hunting in his professional life; there is evidence that his wife, although a gifted woman, lacked these qualities, and it is

* Prepared at the request of the Editorial Committee by John Francis.

* The time and place of Hunting's birth are uncertain. Henry Gray (*Vet. Rec.*, 1913. **26**. 311) writes that he was born in Camberwell, that his mother's maiden name was O'Higgins, and that when five years old, in 1851, he accompanied his parents to South Hetton. This would make his date of birth 1846. The obituary notice in *The Veterinary Journal* states that he was born at South Hetton. There is a tablet in South Hetton Church in memory of Charles Hunting but no record in the church registers of the baptism of William Hunting. We know that the father was a married man with two children when he entered the Royal Veterinary College in 1848, and that he had been living in London before that date. It appears therefore that Henry Gray is correct concerning the place of birth but despite this no record of William Hunting's baptism has been traced in the registers of four Camberwell churches (St. George's, St. Giles', Emmanuel, and Christ Church). There is a suggestion that he was born at Fence Houses, Durham, but although his father gave that address when he qualified, enquiries concerning the church records have elicited no response and it is probably incorrect. According to the L.C.C. records Hunting's date of birth was May 20th, 1846, which agrees with Henry Gray's date, but if this were correct Hunting would only have been 19 when he qualified in 1865. The date of birth given on his tombstone is May, 1843, and as there is little positive evidence controverting this date it has been accepted with some reservation. Attempts to verify this point account for the delay in publishing the article.

probable that the marriage was unhappy. One son qualified as a veterinary surgeon but died young. The younger son and the daughter died in 1937.

The first article in Volume I of *The Veterinary Journal* (1875) was contributed by Hunting and dealt with the prevention of glanders. He said: "In our search for cures we have overlooked the means of prevention. . . . Our pathological knowledge of glanders is by no means complete but so far as it goes it is sound enough to warrant us in adopting energetic preventive measures." Already he was criticising the Board of Agriculture for their lack of energy. Eventually his interest in the control of glanders took on the quality of a religious crusade.

In 1877 he was one of the successful candidates at the first examination for the fellowship diploma and by this time he had moved to Down Street. It is probable that he remained in practice at Down Street until about 1888 when his address was given as 157, Fulham Road. In the same year he was elected an Honorary Fellow of the Central Veterinary Society in recognition of his good services as secretary for a number of years. In June of this year he borrowed £50 from Mr. Thomas Dollar—it is said the money was never repaid—and founded *The Veterinary Record*.

It is probable that during all this time Hunting was in financial difficulties, but about the year 1890 he met Chrystal Irving, then an assistant in Birmingham, and offered him a partnership, which was accepted. There was never any legal agreement between these two men but the partnership was perhaps the most important in the history of veterinary practice. Irving had keen business ability and relieved Hunting of all financial worry—in later years Hunting said: "Whenever I need money I only have to ask Irving and he always gives it me." Hunting was thus able to devote more of his energy to literary work and professional affairs, but he must have done his due share of the everyday work of the practice for he was obviously a man of great clinical experience.

At this period glanders was the scourge of the town stabled horse (particularly those in London) and, as we have already indicated, it was Hunting's great purpose in life to eradicate glanders from the British Isles. Already in 1880 he had been appointed as a part-time inspector by the Metropolitan Board of Works and the London County Council.

On January 1st, 1907, he relinquished his now lucrative practice and accepted the post of Chief Veterinary Inspector to the L.C.C. He retired under the age limit on June 30th, 1910, but his services were retained in an advisory capacity until July, 1912. He was elected member of Council, R.C.V.S. in 1890 and was President 1894–95, he resigned in 1896. He was appointed examiner for the membership diploma in 1898 and for the fellowship in 1901; he retained both appointments until his death. In 1905 he delivered the Introductory Address to the R.V.C. students and dealt ably with various problems facing the profession. In 1907 he was appointed Honorary Professor, and an examiner for the diploma, of the Royal Agricultural College, Cirencester. In the same year Sir John M'Fadyean paid high tribute to his long and invaluable services as Secretary of the N.V.M.A. He was elected President, N.V.M.A. in 1893 and again in 1912. He was a Governor of the Royal Veterinary College and a member of Council of the Lister Institute.

William Hunting died on October 24th, 1913, the cause of his death being otitis media. We understand that he had a long and painful illness, but even to the end he displayed his old fire and enthusiasm during the short periods when he was not in pain.

Hunting was a handsome man of medium stature with an auburn beard, and was hardly ever without a cigar. He was carelessly but well dressed; like all leading veterinary surgeons of the time he never affected the dress of the "horseman." Hunting had some of the characteristics of both parents; he completely lacked his father's business ability, but had his fire and courage and great interest in science. Perhaps his literary interests were partly inherited from his mother. He could mix with people of the highest or lowest station in life and received the respect and affection of both. Despite his practical ability he was an intellectual, having both the faults and the virtues of the type. His intense absorption in professional affairs probably caused him to be an indifferent husband and parent; he was extravagant and had little appreciation of the value of money. When examining in Dublin he would buy an expensive box of cigars and then borrow money to buy a ticket to London; on the other hand, he was extremely generous and always ready to help a colleague in trouble or subscribe to any funds required for a professional purpose. There are those who say that he was lazy, and it is rumoured that he sometimes did not get up until eleven o'clock, but there can be no doubt he was often reading and writing into the early hours of the morning; he might neglect an important engagement to spend hours over a *post-mortem* examination that interested him. These traits did not please his methodical and businesslike father. Hunting admitted that he was a disappointment to his father, and to the end was rather subdued in the presence of the older man. Despite this, however, we can now see that Hunting achieved far more in the professional field than his father, and in the subjects that interested him displayed great steadfastness of purpose; he was completely absorbed in the traditions of his profession and well versed in veterinary history.

Like many other outstanding men, Hunting took a great interest in encouraging young men; he loved discussing problems with students and young practitioners. He had the happy knack of imparting knowledge and listening to their views without ever damping their enthusiasm by obtruding his far greater experience. It was this, together with his kindliness, which probably made him such an ideal examiner. We are told that on one occasion when an able but nervous student gave foolish answers he placed his hand on the student's shoulder and said: "I am sure you know better than this, look upon me as a friend and not an enemy; come back again in half an hour when you are more composed."

In 1890 he gave an address to the Central Veterinary Medical Society on "The teaching and examining of candidates for the Diploma"; much of this address is as relevant to-day as when it was delivered.

Hunting was a painstaking and devoted clinician; for the sake of obtaining information he would attend large numbers of horses without payment and was never happier than when conducting a *post-mortem* examination on an interesting case; in this work he was given much help by William Willis, who was nick-named "The Searcher" by the slaughterhouse attendants. He realised very early the value of mallein but was sceptical concerning the value of much of the current medical treatment. Despite, or perhaps because of, his great clinical experience, he always emphasised the difficulties of diagnosis, and his clinical honesty was well shown in an address to the Central Veterinary Society on colic, in which he said: "I have made a rule to have a *post-mortem* in most of my cases of fatal colic, and I may say that quite as often I find something I did not expect as I find that which I hoped to find. . . . One would like to be able to fit the lesions into the symptoms but I am unable to do so." Later, in 1911: "This much should be remembered—that the public who were taught to expect infallibility in diagnosis by a generation of doctors and veterinary surgeons in the past will retain the same expectations until slowly taught otherwise by practitioners of the present and future."

He and Irving would buy horses and carry out experimental treatment; we believe they repeated Moorcroft's classical experiment on the method of shoeing a horse which brushed.* Professor McCunn informs us that they experimented with large numbers of horses with damaged tendons. Half of these they fired or blistered and the remainder were left untreated. After a period at grass there was no difference between the two groups. Unfortunately we have found no recorded details of these experiments which might have prevented much argument and suffering. It is surprising that the army authorities, so far as we know, never carried out similar experiments.

Hunting's value as a consultant can be judged by the following note from Mr. Perryman: "To the client and professional man—particularly to the young practitioner—did he shine, for he had the happy knack of putting one at ease and not suggesting that many things should have been carried out differently. I well remember the confidence and assurance infused into me, when a young man, particularly in consultation over a difficult case."

Dr. Bullock writes that when speaking in public "he was always at his ease; he spoke slowly, with deliberation, somewhat after the manner of the late Lord Birkenhead, his sentences being punctuated with another puff at his cigar, and a slightly longer pause before the birth of a witty epigram or a telling retort. He was fluent but not verbose, he was conversational in delivery without any pretence at effect, and there was no ambiguity whatever in what he said. Expression in words came naturally to him; he did not need to turn and polish his sentences; they came from the anvil perfectly forged."

When a matter of principle was involved, as for example at Council meetings, he was a determined and fiery controversialist and held firmly to his opinions which were nearly always sound. He also had a strong sense of humour and would often make a remark which transformed the whole atmosphere of a meeting. When he was present there was always a lively and well-informed discussion, in fact no professional meeting or social function was a real success if William Hunting was absent. He seldom was! At one time or another Hunting seems to have addressed almost every branch of the "National" and it was largely his spirit which animated both the local branches and the "National" itself. In 1908 Sir John M'Fadyean said: "He is the mainspring of the National Veterinary Association. Goodness knows what would happen to it if he ceased to be secretary."

* It was previously believed that the shoe should be raised on the inside to prevent brushing. By studying the hoof prints of horses and by practical tests Moorcroft showed that this was incorrect and that the outer branch of the shoe must be raised. This throws the weight of the horse away from the stationary foot and thus causes the feet to be carried further apart.

He was perhaps best of all in the witness-box. As an expert he was in much request. Freeman Barrett describes two cases which show "how loyal he was to his colleagues, how he loved to support them, how distasteful it was to oppose them; but more than this, when unable to give honest evidence he preferred to give no evidence at all."

Hunting will perhaps be best remembered for his literary work and his great contribution to the control of glanders in Great Britain.

Sir John M'Fadyean—a man chary with his praise—speaking at the R.C.V.S. dinner when a presentation was given to Hunting, said: "We admire him as a witty ready speaker: we admire him as an equally fluent lucid writer . . . our debt to Mr. Hunting is largely one of gratitude, because he has always used his great abilities and his opportunities for what he conceived to be the good of the entire profession . . . there is one particular subject which in this country, I think I may say, he has made his own, and that is glanders. What Mr. Hunting does not know about glanders is not worth knowing. He knows more than anybody living about that, and deserves the credit for having started and kept going the crusade against glanders. . . .

"Mr. Hunting's character is printed on the front page of *The Veterinary Record* during all the period of twenty years. I think I ought to say in that connection that Mr. Hunting has never abused the power which he possessed in virtue of the editorship of a journal read by nearly the entire profession."

Hunting read widely. He was not only acquainted with scientific developments but loved to read classical writings, and books dealing with social and economic problems. This, combined with his practical experience, perhaps accounts for the remarkable character of the editorial notes which appeared regularly, week by week, in the *Record*. He was quick to appreciate the practical value of a scientific discovery and to detect any weakness in legislative measures designed to control disease. His writing was clear and logical and conveyed his opinion with precision and force. Above all his understanding and appreciation of the practitioner's difficulties led him to write in a way which attracted and held the interest of his readers—the weekly arrival of the *Record* was an important and keenly anticipated event in the life of many an isolated country practitioner; it was the chief medium through which they became acquainted with the great scientific advances of the period. The cautious attitude which he maintained during the period of excitement following the announcement of tuberculin as a cure for tuberculosis well illustrates his wisdom and judgment. His honesty and lack of prejudice is shown in the attitude he adopted when the motor-car was introduced. He early realised that mechanical transport would largely supersede the horse which he had loved and served so well and he foresaw the profound effect this would have on the profession, but he was never a pessimist; he was always an advocate of improved education, a larger profession, and of widening the scope of our work.

Hunting did literary work for the real love of it, and in his journal we have a record of the work, anxieties, troubles and achievements, both of individuals and of the profession as a whole, which we venture to suggest is almost without parallel. He adhered to his own maxim that "Careful observation makes a skilful practitioner but his skill dies with him. By recording his observations he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of Pathological Science," and he encouraged others to do the same.

Whilst Hunting undoubtedly provided the inspiration and wide knowledge of professional affairs which are essential to the success of a journal, the profession will always be under a debt of gratitude to his publisher, Mr. W. Brown, of Fulham Road, who so devotedly carried on the daily routine of preparing material for publication; there can be little doubt that both Brown and Chrystal Irving developed an admiration and affection for Hunting which led them largely to overlook the usual financial considerations in their association with him.

Owing to the increase of Hunting's official duties Mr. W. Roger Clark began to take over the responsibilities of leader writer in 1905 although Hunting continued to write on special topics.

His book on horse shoeing is a valuable treatise and his monograph "Glanders," which was the successor to a smaller work first published in 1887, will remain a classic of clinical writing; as the disease becomes everywhere less frequent, his descriptions and the admirable plates will become more and more valuable as a record of one of the great animal scourges.

In 1873 Hunting read a paper before the Central V.M.S. in which he emphasised the view that glanders was a specific disease due *solely* to contagion: he failed to obtain the support of a single member.

We have already mentioned his articles in *The Veterinary Journal*, 1875, on the control of glanders. In 1890 he contributed a long article to the *J. comp. Path.* suggesting amendments in the law relating to glanders, and in 1891 clinical notes on glanders. Then in 1892 came a notable contribution published in collaboration with M'Fadyean on "Mallein as an aid to the diagnosis of glanders." We have already quoted M'Fadyean's tribute to his work on glanders but it would be quite impossible to describe here the crusade which he carried on against public indifference and official ineptitude. He frequently addressed meetings, wrote scathing leading articles in the *Record* and headed deputations to the Board of Agriculture.

In 1902, during the course of a characteristic address to the Annual Meeting of the National Veterinary Association, he said: "The object I have in view to-day is to demonstrate that the loss of human and equine life due to glanders will continue so long as the obsolete regulations of the Board of Agriculture are unaltered; and to indicate how the disease may be economically and certainly stamped out by Orders based upon common sense and modern veterinary knowledge.

"It has been said by the President of the Board of Agriculture that the information possessed by veterinarians is insufficient to warrant more stringent measures, based upon their advice, being enforced. Mr. Hanbury's excuse for this statement is a paragraph in the Report of the Departmental Committee of 1899: 'We feel that further research is needed on some of the most elementary facts of the disease before our prevention or treatment can be formulated with scientific exactness.' It is perhaps unfortunate that an abstract opinion of this sort should have appeared in the report, but I venture to think that not more than one member of the committee ever imagined that such a truism could have been used as an excuse for delay. The same words might be applied to every disease of animals that has been stamped out by State regulations, and to every disease of man that has been scheduled for control by the Local Government Board. If the committee had believed that their pious opinion was a bar to further legislation they would doubtless have refrained from recommending any change. They, on the contrary, recommended a number of alterations in the existing regulations—not one of which has been adopted by the authorities.

"These considerations oblige me to give some details concerning glanders which otherwise I might have considered superfluous. This course will at any rate show that we are not altogether ignorant of some of the most elementary facts of the disease, and will form a basis for conclusions as to the best method of stamping out glanders." He dealt with the history, incidence, aetiology, mode of spread and route of infection, period of incubation, *post-mortem* lesions, and methods of diagnosis including the use of mallein. He then gave a precise description of the methods which should be adopted for the control of glanders. Finally, discussing the functions of the lay inspectors who were then employed by the Board of Agriculture, he said: ". . . that the Board should take an active part in looking into all large or new outbreaks, I consider useful, provided it is not entrusted to lay inspectors. It would be absurd in the extreme to send a layman down to assist in preventing the spread of glanders in a town, and still more absurd to entrust him with an enquiry into the origin of outbreaks. That is work for a veterinary expert."

He was eventually appointed Chief Veterinary Inspector to the London County Council in 1907, and there can be little doubt that when the measures of control, which he had been advocating for many years, were eventually introduced, their success was largely due to his personal qualities. Freeman Barrett said: "Mr. Ollis has more than once spoken to me in praise of Hunting's knowledge, and has acknowledged often how valuable his advice was when difficult questions as to administration arose. As an officer of that body (the L.C.C.), possessed of wide powers, he was, although assiduous in effecting his purpose, ever kind and considerate to those who necessarily suffered by reason of his orders. Hence it was that horse owners with animals affected with glanders resented in the least possible degree his intrusion into their stables." Hunting must have died knowing that it was only a matter of time before the great task which he had set himself, and which he had only just failed to achieve, would be completed.

When Hunting died, it would appear from the *Record* of the time that every member of the profession felt he had lost a great personal friend. Almost every division of the "National" paid tribute to his memory—he was an honorary associate or past-president of many of them. After remarking that William Hunting was one of the founders and a past-president of the "Central," Professor Wooldridge said: . . . "each one of us feels that he has lost a close personal friend. His personality was absolutely unique . . . he was never dogmatic in his opinions, and he showed the greatest tolerance and respect for those who did not agree with him. No doubt it was these qualities which made him such an ideal examiner. . . . He might have amassed a large fortune if he had devoted himself to his own personal interest, but Hunting lived for his profession, and I feel sure you will all agree with me when I express the opinion that there has never been a man in our day, or any other day, who has done more for the general welfare of the veterinary profession and its

members. His name will be handed down to posterity as one of the giants of the veterinary profession, through some of the most critical periods of its existence."

In a personal appreciation, Mr. Freeman Barrett wrote: "Inasmuch as William Hunting exerted so wide a personal influence upon us all, and was esteemed so very much by the whole of the profession, a mere official announcement of his death and work would not sufficiently indicate the love which was entertained for him, and the warmth of our attachment to him."

During his life Hunting received no official recognition of his services, perhaps because he had so often found it necessary to criticise Government policy, but after his death his children were awarded a Civil Pension.

When describing the life of one man it is fatally easy to overestimate his importance. Sir John M'Fadyean and Sir Frederick Smith were each outstanding men in their own field and contemporaries of Hunting. It is almost impossible to draw a comparison between their different achievements even if it were of any value to do so, but it must always be remembered that except for short periods Hunting had to carry on the work of a general practice; he had all the attributes of a born teacher—his influence at one of the colleges might have produced great benefit to the profession—but he made his contribution in other fields and, as we have said, was a real teacher of the profession.

William Hunting and William Osler were contemporaries; they were both essentially clinicians with a deep understanding of pathology and preventive medicine—neither had much faith in drugs. They were both honest, kindly and, above all, human men, who wanted nothing better than to help their colleagues and advance their profession; they were particularly helpful to the student and young practitioner. Men of transparent honesty and uprightness, fond of attending professional meetings and with a real love of literary work, their personalities exerted a profound unifying effect on their respective professions. They each left an inspiring example, but it is probable that their position will remain unique.

Acknowledgments.—Numerous people have provided information and anecdotes describing Hunting. I am particularly indebted to Dr. J. T. Edwards, Dr. Bullock and Professor McCunn for their help and to Mr. J. S. Steward for allowing me to examine his volumes of *The Veterinary Record*. The editorial staff have given much valuable assistance.—J. F.

SOIL AND FOREST IN AFRICA

Almost alone among the former great Powers, says *Nature* (June 12th, 1943) in an article entitled "Farm and Forest in Colonial Administration," the Anglo-Saxon race have ignored the intimate relation existing between agriculture and forestry and have carried with them this lack of appreciation all over the world, where before their advent, enormous stretches of forest, apparently inexhaustible, were in existence. The general results of the maltreatment of the forest in various parts of the world by the Anglo-Saxon race during the past century are well known. The citizens of the United States have been as guilty as those of the British Empire. Whereas British administration of the Colonies, in putting an end to internecine strife and in introducing health measures, sanitation and education, is as good as anywhere else in the world—and in methods often far superior—the aftermath of the lack of appreciation of proper care that should have been taken of soil and forest is now revealed in the growing impoverishment, and, in cases, sterility, of the soils of many British colonies. The British administrations have been guilty of an error of judgment in the rigid application of the early introduced rule that all interference with the local practices, habits and customs of the people was to be deprecated. In consequence, such common practices as shifting cultivation, firing of the countryside in the hot season and unrestricted grazing by herds of stock, increasing with amazing rapidity under the *Pax Britannica*, continued unchecked. In New Zealand, at least, a recognition of one of the causes of erosion, namely unchecked firing of the countryside, has begun to make its appearance. In Africa it is beyond question that the soil of the continent is becoming increasingly impoverished by the very means by which great tracts of that old continent have become reduced to desert, or practically desert conditions, by man in the past. It was in justification of this belief that the Royal African Society set up a small Commission of Research for Africa and invited representatives who had been administrators in those colonies from the Free French, Belgian and Dutch Governments in London, to serve on it. The Commission came to unanimous conclusions on the subject of shifting cultivation, bush fires, grazing, reservation of forests, and erosion. It may be hoped, concludes *Nature*, that the Secretary of State for the Colonies may yet find time to study this important problem, vital to the future well-being of the large populations under his care.

THE VETERINARY RECORD

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THE PROBLEM OF MASTITIS

WE have published recently several articles on mastitis, a series of discussions on its control and a review of the more recent literature on the subject. Approaching the problem from different angles, much the same sort of conclusions have been reached.

Work carried out during the last 15 to 20 years has added considerably to our knowledge of the bacteriology of mastitis, and led to a clear recognition of the various aetiological types of the disease. Much has also been learnt of the relative value of various methods of diagnosis. This has formed an essential basis for further investigations.

The earlier work on the control of *Str. agalactiae* mastitis demonstrated that the disease can be eradicated by regular cultural tests and segregation of the infected. It was based on the assumption that heifers were uninfected and that spread took place nearly always from cow to cow at milking time, and it would seem that in the herds concerned this was largely the case. The results of a fairly extensive application of the method have, however, been disappointing owing to the high incidence of new infections in many herds in spite of the precautions dictated by the above assumption. We now know that a considerable number of heifers are already infected at the time of their first calving—possibly from the ingestion of infected milk, possibly from suckling each other during calfhood—and that *Str. agalactiae* may persist in various places, including the hands of milkers, for a considerable time despite the usual precautions. Further, that infection may be of such a minimal or transient nature as to escape the ordinary methods of diagnosis. All of this has complicated immensely the task of control by segregation, which was always costly in time and materials.

Meanwhile the view has become widely accepted that herd management and environmental factors are of equal importance to the specific organisms in the pathogenesis of most forms of mastitis. The importance of these factors has long been recognised but they have been specially clearly borne out by the results in one experimental herd kept under good hygienic conditions in which every other cow was heavily infected and new infection only occurred in the healthy animals following udder or teat injury. Some aver that the desire for clean milk, leading to the frequent washing of udders and use of concrete floors, is an important predisposing or contributory factor in mastitis. Perhaps the use of rubber-latex floors will help to solve one aspect of the question. There seems no doubt from the evidence that, unless adverse environment factors can be detected and corrected, attempts at treatment or control on the basis of cultural tests lose much of their point. The type of milking machine and care with which it is used (vacuum, time left on the cow, etc.) appear to be matters of outstanding importance, and when sufficient work has been done for a definite statement to be made concerning the relative merits of various milking machines, a real advance will have been made. Some are of opinion that *Str. agalactiae* infection is favoured by previous infection by certain other organisms.

There is insufficient information on the physiology of mechanical milking or on the influence of such factors as the virulence of the strain of streptococcus, the breed of cow, nutrition or the construction of byres on the incidence of the disease. The whole process of milk secretion is still in many ways obscure and the controversy, sudden cessation

of milking *v.* intermittent milking for drying off cows, has not yet been settled by resort to experiment, though complete cessation of milking appears to be gaining some favour, and, rather surprisingly, has been used in the "treatment" of some forms of acute mastitis. The value of the practice of pre-milking also deserves some consideration.

The problem of diagnosis has received much attention: at one time it was generally believed that, in contrast to clinical examination, bacteriological diagnosis gave a precise answer. We now know that, as more and more exacting bacteriological methods have been devised, an ever higher percentage of carrier cows has been detected in infected herds and that, therefore, the difference between many routine bacteriological methods and skilled clinical diagnosis may be looked on as only one of degree. This, combined with the recognition of the great effect of environmental factors in the incidence of mastitis, may eventually lead to the conclusion that clinical examination and enquiry on the spot leading to advice in herd management, can do as much to control mastitis as anything else. If, however, bacteriological diagnosis proves essential, the microscopic examination of incubated milk samples is probably the most economically practicable method. In the hands of several workers it has already given valuable results and it is being used by practitioners both in the U.S.A. and Great Britain. Considerable care is, however, needed in its use.

Good results have been claimed by individual workers using various new methods for the treatment of *Str. agalactiae* infections, *e.g.*, tyrothricin (gramicidin), novoxil and sulphonamide E.O.S. for udder irrigation and sulphanilamide or diamino-diphenyl sulphone by the mouth. There is, however, as yet no general agreement that any one of them is of outstanding value or clearly superior to the older methods, though sulphanilamide by the mouth or sulphonamide E.O.S. for irrigation appear to be of considerable value for the relief of clinical symptoms and tyrothricin (unfortunately in short supply) combines a high degree of bactericidal efficiency with little or no irritant effect on the mammary tissue. The economic aspects of treatment have been rightly emphasised; a method requiring three or four treatments by a veterinary surgeon is necessarily costly and not to be chosen unless its efficiency is high.

We cannot deal here with the more special aspects of summer mastitis and staphylococcus mastitis. There is still much to be learnt about various factors in their pathogenesis. In both, the production of increased resistance by means of the respective toxoids is receiving attention, and we trust that field trials of these preparations will receive the wholehearted co-operation of practitioners which the importance of the diseases merits.

Surprisingly little has been written on the essential pathology of mastitis, and a fuller knowledge of bovine mammary physiology and pathology, linked with more exact clinical study, should assist considerably in our approach to treatment and control. There is a tendency to believe that good research can only be done in the laboratory and on experimental animals. Research which is divorced from clinical study is likely, however, to lose touch with reality. Keen clinical observation has often led the way in other diseases and may yet provide clues to the solution of many of the questions of mastitis. The whole problem is extremely complex, but it is encouraging to know that it is being tackled from many different angles.

Millions of feet of the plastic filament, nylon, formerly produced for tennis rackets and fishing leaders are now being made for surgical sutures and are being shipped to the United Nations throughout the world. Nylon filaments are solid strands, are inert, non-irritating and do not fray.—*Vet. med.*

CLINICAL COMMUNICATION

Pasteurellosis in Swine

R. F. CREASEY, M.R.C.V.S.,
and
W. A. NOBLE, M.R.C.V.S.,
Long Sutton, Lincs

Subjects.—Nineteen Large White pigs, twelve weeks old.

History.—The pigs had been inoculated against swine erysipelas with vaccine (living) and serum 14 days previously. On May 26th veterinary advice was sought as three pigs had died suddenly during the night.

Symptoms.—A fourth pig was found *in extremis*, gasping for breath and showing spasmodic movements of the limbs. On being lifted to its feet it staggered a few steps then collapsed. The temperature was 98·5° F. This pig died about two hours later. On the following day another one was found in the same condition. It was destroyed and the carcase brought to the surgery for a *post-mortem* examination. Next day yet another pig was showing symptoms of the disease, which were—extreme lassitude, dyspnoea, inco-ordinate movements, temperature 105° F. This pig recovered, however, after appropriate treatment.

Post-mortem Examination.—This revealed reddish blue coloration of the skin, most marked upon the side on which the animal had been lying; a few petechiae in the subcutaneous tissue of the abdomen; lymphadenitis of the mesenteric glands; catarrhal inflammation of the small intestine and impaction of the caecum; pale red infarcts in the spleen and normal kidneys.

An acute pharyngitis and laryngitis were noted. The most marked changes, however, were found in the lungs which had numerous areas of consolidation and when cut into presented the typical marbled appearance associated with pasteurellosis. Pericarditis was present and a considerable amount of fluid was removed from the pericardium.

Smears from the various organs were made in the approved manner and the results revealed a Gram-negative cocco-bacillus. The organisms were most abundant in the pharynx, lungs and bronchial glands while smears from the gut, spleen and heart blood showed only a moderate number of bipolar organisms. In the smear from the pharynx the bacilli showed well-marked capsules.

Treatment.—Because of the prevalence of swine erysipelas in the district each pig was given 10 c.c. of swine erysipelas serum.

On opening the dead pig on the 26th swine erysipelas was ruled out, but the pig was unfortunately not in a fit state to enable a detailed *post-mortem* examination to be made.

May 27th.—10 c.c. of "soluseptasine" were administered to each pig.

May 28th.—The pig which showed the above-mentioned symptoms on this day was given subcutaneously 25 c.c. "suisan" (a polyvalent serum obtained from horses and oxen, containing a specific mixed vaccine prepared from streptococci, *Pasteurella suiseptica* and bacteria of the coli paratyphoid group, preserved by the addition of radioactive metallic salts.) The remaining 13 were each given 15 c.c.

May 29th.—The healthy pigs showed a reaction to the injection inasmuch as they went off their food for 24 hours. The animal which received the large dose of "suisan" was much brighter but was given another 20 c.c.

Recovery was uneventful and no more deaths took place.

TANNIC ACID AND LIVER NECROSIS

Commenting editorially on the findings published by these authors in its issue of the previous week, *The Lancet* (August 21st, 1943) observes: "Cameron, Milton and Allen have experimentally investigated the toxicity of tannic acid when introduced into the animal body by various routes, and the chances of its absorption through burnt surfaces. They prove conclusively that tannic acid is a toxic drug. Its main effects are haemoconcentration, great oedema at the site of injection, loss of plasma proteins, renal damage and hepatic necrosis." The liver lobules possess a remarkable power of repair, but, "the main part of the liver lesion is a coagulation necrosis of the centres of all the lobules. . . . Their experiments leave no doubt that tannic acid is absorbed from large burnt surfaces, and can be demonstrated in the tissues, including the liver and kidneys, by suitable tests." . . . There is clearly a great difference between the effects of tannic acid injection and its application to a burn, but "it seems probable that newer procedures, now under trial, will entirely supersede tannic acid, or that tannic acid will remain the application of choice for smaller burns of the body requiring immediate treatment."

ABSTRACTS

[PRELIMINARY OBSERVATIONS ON HEXACHLOROETHANE FOR CONTROLLING THE COMMON LIVER FLUKE, FASCIOLA HEPATICA, IN CATTLE. Olsen, O. W. (1943.) *J. Amer. vet. med. Ass.* **102**. 433.]

The author treated with hexachloroethane (C_2Cl_6) 352 cattle, 209 of which were passing fluke eggs in the faeces.

The drench was prepared by mixing 500 grammes of hexachloroethane [syn. carbon tri- or hexa-chloride], 50 grammes of Bentonite and 750 c.c. of water to make 1,000 c.c. of suspension having 1 gramme of the drug to 2 c.c. of the mixture. [Bentonite or Wilkinite is defined in the Merck Index as a colloidal native hydrated aluminium silicate, having the property of forming highly viscous suspensions or gels with not less than ten times its weight of water. Used as an emulsifier of oils, etc.

Cattle were given 20 c.c. (*i.e.*, 10 grammes hexachloroethane) per 100 lb. live weight by means of a drench syringe. They were not fasted either before or after treatment. No ill effects were observed. Faeces sample examinations made two to three weeks after dosing showed that 191 (91 per cent.) of the infected animals were no longer passing fluke eggs and *post-mortem* examinations on five showed that four were free from flukes and that one was harbouring a few flukes. It is possible that these flukes may have been acquired after treatment as death occurred (from another cause) four months after treatment.

The author states [no details given] that treatments with hexachloroethane alone or with hexachloroethane and kamala in capsules did not give results superior to the drench method.

Hexachloroethane dissolved in tetrachlorethylene produced an undesirable narcotising effect which in the case of debilitated animals proved fatal.

J. S. S.

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[SULPHAGUANIDINE THERAPY IN EXPERIMENTAL BOVINE COCCIDIOSIS. Boughton, D. C. (1943.) *Amer. J. vet. Res.* **4**. 66.]

This drug was found to be useful in checking the symptoms in calves experimentally infected with *E. bovis*, the usual cause of coccidiosis in bovines. The doses used were either 1 gramme per 22 lb. body weight per day for three weeks or 5 gramme doses for eight days. The result when the infecting coccidium was *E. alabamensis* were not good. The reason for this difference and the possible relationship with the life history of the parasites are discussed and also the relationship between the size of the infecting dose and the result of treatment.

P. S. W.

COLONIAL ECONOMIC ADVISORY COMMITTEE

The Secretary of State for the Colonies announced some time ago his intention of setting up a Colonial Economic Advisory Committee to give him advice on matters of general economic policy in the Colonial Empire. This Committee has now been appointed with the following terms of reference: "To advise the Secretary of State on such questions of economic policy in relation to the Colonial Dependencies as he may refer to the Committee, including particularly matters of general policy arising on programmes of economic development."

The members of the Committee are: The Duke of Devonshire, Parliamentary Under-Secretary of State (Chairman); Mr. G. I. M. Clauson (Vice-Chairman); Lord Hailey, Sir Bernard Bourdillon, Sir William Goodenough, Sir John Hay, Sir Hubert Henderson, Sir Harold Howitt, Mr. A. Dalgleish, Mr. E. F. M. Durbin, Mr. J. Hallsworth, Mr. J. McFadyen, Mr. J. McLean, Captain B. H. Peter, and Professor L. C. Robbins.

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ANIMAL HEALTH AND DAIRY BY-LAWS (SCOTLAND)

The War Committee of the N.F.U. and Chamber of Agriculture for Scotland has asked the Secretary of State to take the necessary steps to secure the transfer of the Control of Animal Health in Scotland from the Ministry of Agriculture to the Department of Agriculture for Scotland. "This has been found necessary owing to the difficulties which have been experienced in connection with disease outbreaks, the arrangements in respect of which have had to be made from the South. The change is rendered the more urgent in view of the alterations proposed in the administration of Dairy By-Laws in England as set out in the Government's White Paper on Milk. These proposals stress the need for a centralisation of the powers relative to Animal Health and Housing in England and it is felt that the need for such centralisation is equally clamant in Scotland."

NOTES AND NEWS

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Sept. 18th.—Meeting of the Southern Counties Division, N.V.M.A., at Ringwood and Christchurch, 2 p.m.

Sept. 21st.—Special Meeting of the North Midland Division, N.V.M.A., at Sheffield, 2.30 p.m.

Sept. 27th.—R.C.V.S. Committee and Council Meetings, 16, Bedford Square, W.C.1.

Sept. 28th.—Meeting of Council, N.V.M.A., Connaught Rooms, Great Queen Street, Kingsway, W.C.2.

Sept. 28th.—Special Meeting of the Society of Women Veterinary Surgeons, Friends House, Euston Road, N.W.1, 3 p.m.

Sept. 28th.—Meeting of the Veterinary Inspectors' Association, at the London School of Hygiene and Tropical Medicine.

Sept. 29th.—Meeting of the V.V.B.F. Ladies' Guild, at the London School of Hygiene and Tropical Medicine, 11 a.m.

Sept. 29th and 30th.—**N.V.M.A. Annual Meeting and Conference, London School of Hygiene and Tropical Medicine.**

Oct. 6th.—Meeting of the Editorial Committee, N.V.M.A., at 36, Gordon Square, W.C.1, 2.30 p.m.

Oct. 7th.—Annual Meeting of the Central Veterinary Society, Conway Hall, Red Lion Square, W.C.1, 2 p.m.

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N.V.M.A. Annual Meeting and Conference

Programme of Proceedings

TUESDAY, SEPTEMBER 28th

At the Connaught Rooms, Great Queen Street, W.C.2.

2.30 p.m.—Council Meeting (*for members only*).

At the Waldorf Hotel, Aldwych, London, W.C.2.

8.30 p.m.—President's Reception.

WEDNESDAY, SEPTEMBER 29th

At the London School of Hygiene, Keppel Street, W.C.1, in the Main Lecture Theatre.

10.0 a.m.—Annual General Meeting:
Notice convening the meeting.
Welcome to foreign delegates.
Presidential address: "THE VETERINARY PROFESSION AND THE NATION."
(*Adjournment of A.G.M. to September 30th, at 2.30 p.m.*)

11.0 a.m.—Paper: "THE VETERINARY SURGEON IN THE DEVELOPMENT OF THE COLONIES" by *Major J. M. Smith, O.B.E., M.R.C.V.S.*, formerly Chief Veterinary Officer, Department of Agriculture and Fisheries, Government of Palestine.
Opener: *Professor W. Kearney, M.R.C.V.S.*, of the Veterinary College of Ireland Dublin.

11.0 a.m.—Meeting of the V.V.B.F. Ladies' Guild in Room 103.

At the Connaught Rooms, Great Queen Street, W.C.2.

12.45 p.m. for 1 p.m.—Association's Luncheon.

At the London School of Hygiene, Keppel Street, W.C.1.

3.0 p.m.—Continuation of the discussion on paper: "THE VETERINARY SURGEON IN THE DEVELOPMENT OF THE COLONIES."

THURSDAY, SEPTEMBER 30th

At the London School of Hygiene, Keppel Street, W.C.1.

10.0 a.m.—Paper: "THE IMPROVEMENT OF LIVESTOCK" by *Professor Robert Rae, B.Agr., C.D.A.*, of the University of Reading.

Openers:
Colonel E. M. Curley, Chief Veterinarian, U.S.A. Army in the European Theatre of Operations.
Dr. Tj. Bakker, representing the Netherlands Government.
Mr. S. L. Hignett, B.Sc., M.R.C.V.S., of the Wellcome Physiological Research Laboratories.

1.0 p.m.—Close of Conference.

2.30 p.m.—Adjourned Annual General Meeting (*for members only*), to be immediately followed by brief meeting of Council members for 1943-1944.

PERSONAL

Birth.—PRITCHARD.—On September 12th, 1943, at the County Hospital, Bangor, Caerns., to Margot (*née* Lewis Jones), wife of R. W. Pritchard, M.R.C.V.S., a son.

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R.C.V.S. OBITUARY

ORR, John Love, Main Street, Strabane, Co. Tyrone. Graduated Glasgow, December 18th, 1888. Died March 12th, 1943; aged 80 years.

WOOD, Joseph Henry, Stafford House, Leighton Buzzard, Beds. Graduated London, December 16th, 1926. Died August 9th, 1943; aged 41 years.

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V.V.B.F. LADIES' GUILD

It is of importance that the strength of the Guild, and the interest in its work taken by the ladies associated with the profession, should be maintained unimpaired in order that its activities, which are so helpful to the Benevolent Societies, may be resumed to the full when circumstances permit. A good attendance, therefore, is hoped for at the twelfth annual general meeting on September 29th, particulars of which are given in our notices column.

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Milk as Food

The important joint conference of the Nutrition Society and the Food Group of the Society of Chemistry and Industry was held on Saturday, July 3rd, at the London School of Hygiene and Tropical Medicine. The discussion on one of the three papers read was opened by Dr. W. R. Wooldridge, and several other veterinarians made contributions. A full report of the meeting will ultimately appear in the *Proceedings of the Nutrition Society*, but in view of the importance of the subject matter to veterinary readers an abbreviated report is given here by permission of the Society's officers.

(1) Mr. J. L. Davies (*The Production, Marketing and Supply of Milk*) said that over 150,000 farms in England and Wales were engaged in the production of milk for sale; the number of farmers and workers employed on these farms for the purpose could not be less than 300,000. There were probably some 120,000 to 150,000 persons engaged in the transport, handling and distribution of milk, giving an estimated total of 400,000 to 500,000 people gainfully employed in the industry. The total capital valuation before the war was between £350 and £400 million. It therefore required the effort of one man, and between £750 and £1,000 of capital investment, to bring seven gallons of milk daily from cow to consumer. This was not the full picture, as no account was taken of feeding stuffs, etc.

The variation from holding to holding was tremendous. Thus in England and Wales as a whole, and in two individual counties, the holdings could be classified as follows:—

Size of herd	% *of total herds*			% *of total cows from which milk is sold.*		
	E. & W.	*Berks.*	*Devon*	*E. & W.*	*Berks.*	*Devon*
Under 10 cows ...	36	14	53	13	3	31
10 to 24 ...	45	37	43	42	22	58
25 to 49 ...	15	34	4	31	43	10
50 and over ...	4	15	—	14	32	1

The average number of cows in the dairy herds (from which milk was sold) was now about 16. Large numbers of farmers have turned to milk since the development of the Milk Marketing Board in 1933, there being about 158,000 to-day compared with about 100,000 ten years ago. About 50 per cent. of all holdings of over five acres now sold milk. Of the total numbers of dairy cows of all types, beef cows included, 85 per cent. belonged to herds from which milk was sold. Before the war, it was estimated that the milk output represented about one-third of the total agricultural output.

There were wide variations in the breed and type of cows, in farming systems, and in the purposes for which cows were kept. The average yield per cow before the war (the figure has since declined) was taken as from 500 to 550 gallons, according to season. In milk-recording herds, of which at the end of 1942 there were about 5,000 (representing 120,000 cows), the average pre-war yield was 700–750 gallons, but these herds were undoubtedly above the average and not representative of the great majority. The yield per cow on farms in the dairying areas, where herds were kept mainly for purposes of milk selling, where farmers were more experienced and conditions more suitable, and from where the greater part of the liquid milk supply normally comes, was about 600 to 650 gallons according to season. This seemed a better "average" than one based on all farms in the country.

Many improvements in milk production could be effected through the W.A.E.C.s, but it was essential to plan for post-war improvements now. The first need of the industry was better buildings, equipment and water supplies, and supplies of electricity should be improved also. A recent survey involving a large number of dairy farms showed the following figures, which were probably true for some 25 counties:—

	% *holdings*	
	Cowsheds	*Farm dairies*
Satisfactory	40 ...	35
Moderate	38 ...	38
Poor	22 ...	27

Water supply	% *holdings*
Laid on to cowshed and/or dairy	44
Laid on to yard only	27
None	29

Cooling system	% *holdings*
Water direct to cooler in use	28
Water fed to tank and cooler by hand	12
No water cooler system	60

Only 4 per cent. of farms had full sterilising equipment, while the remaining 96 per cent. had to use hot water. A ten-year plan, involving £100 millions, was needed to remedy the whole position.

The second big need of the industry was to control the diseases of dairy cattle, and again a ten-year plan was suggested. The third requirement was a plentiful supply of good labour, for which a six-day week would be necessary. The form of marketing and control for the milk service after the war would depend largely upon the national food policy. The consumption of milk in this country should be raised to the nutritional standards over a period of ten years. The industry could provide the greatly increased supplies necessary for this purpose if it adopted the ten-year plans suggested, but it was absolutely essential to plan now.

Dr. W. R. Wooldridge, who opened the discussion, dealt briefly with the various factors affecting the quality or quantity of milk given by a cow. He indicated those facts which influence the milk from individual cows and referred to others which affected the milk after it had left the cow, particularly if it was bulked.

In detailing the management necessary to produce the best results in milk production he referred to the importance of good breeding, well balanced feeding, properly constructed buildings with adequate light and facilities for cleanliness, adequate equipment, and a plentiful supply of water.

The effect of disease upon the milk yield was then outlined and tables were displayed indicating the effect upon the average yield of the individual cow and the effect upon the total milk production of the national yield. A further table was given showing the various indirect losses which arose from some of the wasting diseases of cattle and finally a table was displayed showing the extent to which official schemes at the moment, brought the dairy herds under any form of veterinary examination. Dr. Wooldridge concluded by stressing the importance of extending this veterinary service to all dairy herds, particularly the worst herds which now were generally untouched.

Professor Ashby believed that every dairy farmer should participate in the Scheme for the Control of Certain Diseases of Dairy Cattle, but doubted the validity of published estimates of the effects of disease upon milk production.

Dr. A. W. Stableforth said that Professor Ashby had expressed the view that the effects of disease on the national milk yield could not be so large as stated, or farmers would have done more about them. This assumption was seriously open to question. Numerous instances could be quoted of serious losses from disease which had just been accepted as inevitable. Many years' work on mastitis and abortion had led him to support the essential validity of the figures given for these diseases. The figure for sterility could be criticised on the grounds that it was too much to expect a calf every ten months but the loss was undoubtedly large. Professor Ashby had said also that disease control measures would not produce more than 5 to 7 or 10 per cent. improvement in the annual yield in five years. This percentage would well repay the cost.

Apart from capital, Mr. Davies had made three main points in his ten-year plan: better buildings, equipment, and water supplies, control of disease and adequate supplies of trained labour. Improved feeding and breeding were also of first importance, particularly on the smaller farms. All of this necessitated improved education of all on the farm and close co-operation amongst those outside who could help to bring home the knowledge already waiting to be used.

(2) Dr. A. T. R. Mattick (*Bacteriological Aspects of Milk Processing and Distribution*) suggested that almost all he had to say could be found in Professor G. S. Wilson's recent book, "The Pasteurisation of Milk." He dealt with the objects of pasteurisation and with the pathogenic organisms (*M. tuberculosis, Br. abortus,* streptococci pathogenic for man, staphylococci, etc.) and suggested that the belief that milk of almost any hygienic quality was suitable for pasteurisation was quite untenable. Milk from healthy cows, without adventitious contamination, was virtually sterilised by pasteurisation. Unfortunately many udders were not healthy, and their secretion contained *Str. agalactiae, Str. uberis, Str. dysgalactiae* or staphylococci in addition to the small numbers of micrococci and corynebacteria which appeared to be present in milk from healthy udders. If the

total plate count from a sample of raw milk exceeded 2,000 per ml. (and in most cases 300 per ml.), there was infection of the udder. Neither the micrococci nor the corynebacteria of normal milk survived treatment at 63° C. for 20 minutes. It has been shown that ordinary fresh milk pasteurised at 63° C. for 30 minutes and held at 34° F. will keep without significant change for about 30 days. In addition to udder infection, there was contamination between cow and pasteurising plant, and the survivors of pasteurisation might include streptococci, micrococci and spore-formers of several types. The streptococci induced acid-formation, while the spore-formers produced rapid spoilage. Some coliform organisms from such sources as dirty milking machines may be heat-resistant. The presence of heat-resistant organisms detracted from the value of the plate-count as a measure of efficient pasteurisation.

Dr. Mattick dealt also with plant contamination and with contamination after pasteurisation, and said that he believed the "Holder" process was about to be superseded by "H.T.S.T." (high-temperature, short-time) pasteurisation. Pasteurised milk was desirable in stock feeding. In properly conducted pasteurisation we had a method of rendering the milk-supply safe for consumption by the mass of the people. Under present conditions pasteurisation enhanced the keeping quality of the milk and made it possible for milk to be generally distributed.

Professor G. S. Wilson, who opened the discussion, referred to the arguments of those who discredited pasteurisation. The most subtle of these was the contention that small doses of bovine tubercle bacilli conferred protection against subsequent infection with human TB. As other contributors to the discussion emphasised, this would be a most dangerous form of vaccination even if it were known to be effective, and the mortality rate would be so high that the practice could never be countenanced as a prophylactic measure.

(3) Dr. S. K. Kon (*The Chemical Composition and Nutritive Value of Milk and Milk Products*) gave the following figures as representing the composition of English milk produced by cows on pasture :—

100 g. contain	87·6 g. water
	12·4 g. total solids
	66 calories
	3·3 g. protein
	3·6 g. fat
	4·7 g. carbohydrate
	0·12 g. calcium
	0·10 g. phosphorus
	0·01 g. magnesium
	0·03 g. iron
	150 I.U. vitamin A and carotene
	45 µg. vitamin B_1
	150 µg. riboflavin
	80-400 µg. nicotinic acid (depending on method of assay)
	30 µg. vitamin B_6
	5 µg. biotin
	14 µg. inositol
	2 mg. vitamin C
	2 I.U. vitamin D

There were small losses of vitamins B_1 and C in pasteurised milk dried milk, and sweetened condensed milk, and somewhat larger losses of the same two vitamins in evaporated milk, but in no case did the amount of such losses equal the normal variations to be found in raw milk. A pint bottle of raw milk which was left on the doorstep in the usual way for half an hour and then placed in the larder had lost fully half the "vitamin C delivered by the milkman" by the time it was consumed. Brown glass milk bottles would be the ideal solution to this problem of destruction by light, but whether they would ever become popular was problematical.

A. N. W.

Weekly Wisdom

Thus we arrive at "pure history." This notion of historians, of history devoid of aesthetic prejudice, of history devoid of any reliance on metaphysical principles and cosmological generalisations, is a figment of the imagination. The belief in it can only occur to minds steeped in provinciality—the provinciality of an epoch, of a race, of a school of learning, of a trend of interest—minds unable to divine their own unspoken limitations.—A. W. Whitehead, Adventures of Ideas.

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The programme of autumn sessional meetings of the Royal Sanitary Institute includes a meeting at Rhyl, on Saturday, September 25th, at 10.30 a.m., at the Town Hall, when the following papers will be read and discussed: "Some Observations on the Government Milk Policy," by Dr. A. E. Roberts, County Medical Officer of Health, Flintshire, and "Milk Administration: Past, Future?" by Mr. M. Emlyn Thomas.

CORRESPONDENCE

Letters to the Editor should reach the Office not later than by the first post on Monday morning for insertion in following Saturday's issue.

The views expressed in letters addressed to the Editor represent the personal views of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

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VETERINARY EDUCATION

Sir,—I have read Mr. Hall-Patch's letter on veterinary education and feel that his views are shared by many of the younger members of the profession, particularly his remark that they are unable to make their opinions felt in matters concerning the future of the profession.

It is, of course, not possible for all members of a practice or other unit to attend Divisional meetings of the N.V.M.A., and we find, from experience, that it is usually the older member who does. Could this matter be remedied by forming a "Junior Branch" of the N.V.M.A. for members who have graduated, say, in the last ten years? Meetings could be held at times other than those of Branch meetings and in such a case no senior veterinarian would reasonably object to his assistant, junior partner, or other, from attending. Thus the views of the younger members could be voiced to the satisfaction of all, and I am sure the Council would find their opinion of value.

Yours faithfully,
H. Williams Smith.

Edenbridge House,
Shepton Mallet,
Somerset.
September 2nd, 1943.

. . . . . .

Sir,—Divisional meetings are leaving little doubt as to the opinion of the general body of members of the Association on the subject of the one-portal system.

As, however, at least one division has passed a vote of "no confidence" in the N.V.M.A. Council as a result of the decision reached by those "happy few" during the evening of June 16th, it is interesting to examine the published reports in order to ascertain if that view could be said to be in any way representative of even the Council itself.

We observe (*V.R.* supplement July 31st) that Mr. Matthews' "impression was, from two long meetings of Council, that there had been a very considerable swing of opinion (*re* the one-portal) during the last two years," whilst Dr. Stableforth thought that "the report did express the views which had been voiced in this Council chamber."

A study of the published reports (*V.R.* supplements March 13th and May 22nd) of those two meetings at which veterinary education was debated, shows that, in addition to the President, 45 members of Council were present on one or both occasions and that of these 23 were able to speak. At these two meetings two voices only, in the minutes as published, suggested that the one-portal system might no longer be essential to the profession—those of Mr. Matthews and Dr. Stableforth, whilst two members spoke in favour of its retention.

It is possible that paper restrictions may have resulted in the exclusion of references to the matter from the speeches of other members, but, from the published minutes, it is hardly possible to support the claim that the vote taken late on June 16th was representative of the whole Council.

Yours faithfully,
George A. Willis.

Chapel Court,
15, Vauxhall Road,
Liverpool, 3.
September 5th, 1943.

The R.S.P.C.A. inform us of the pending award to Mr. F. T. Williams, M.R.C.V.S., of Buxton, of the Society's silver medal and certificate for his courage and humanity in rescuing a cat which had fallen through a grating down a 30 ft. disused air shaft from deep cellars at a Nottingham public house. The descent with ropes and lamp was difficult and dangerous, but the subsequent long search of passages bricked up cellarwards, eventually revealed the cat which was brought up none the worse for its fall.

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As notified in the return published in our last issue, over 6,000 farmers in England and Wales have registered their herds under the veterinary scheme for the control of dairy cattle diseases. This provides for the regular supervision of nearly a quarter of a million head of dairy stock. In Scotland 342 farmers have registered, the number of animals concerned approaching 22,000.